USSR

TABAKMAN, I. B., RIZAYEV, S. R. UDC 51

"Operative Control in the Coal Section with the Application of Situation Forecasting"

V sb. Prom. kibernetika (Industrial Cybernetics -- collection of works), Kiev, 1971, pp 51-61 (from RZh-Kiberentika, No 9, Sep 72, Abstract No 9V552)

No abstract

USSR

PULATOV, I. R., SOLOGUB, G. R., and RIZAYEVA, F. N., Uzbekistan Scientific Studies Institute of Vaccines and Serums

"Self-Immunization Processes for Animals for the Introduction of Venom From the Middle Asian Viper (Vipera lebetina turanica)"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, Jul 73, pp 50-51

Abstract: An injection of snake venom, or tissue from another animal that had previously been injected with the venum, into an organism may be used to stimulate the formation of antibodies against the serum. Experiments on white mice have shown that antibodies are developed in response to treatment with liver and spleen at different times after the injection of the venom. Antibodies were separated by precipitation of the antibody-antigen complex with $(NH_4)_2SO_4$, 4, 10, and 15 days after the injection. With the antigens from normal spleen (titre of 1:11 and 1:16), antibodies were observed in 36.6% of the cases after 4 days and in 100% of the cases after 10 days. Thus for a single injection of snake venom an animal is able to respond with a specific self-immuniological reaction which develops in the presence of antibodies in the blood serum and which is corroborated by a cytological reaction.

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USSR

PULATOV, I. R., DANILOVA, R. I., ROZGON, N. I., and RIZAYEVA, F. N., Tashkent Scientific Research Institute of Vaccines, and Sera, Tashkent

"Comparative Characterization of Immunomorphological Reactions upon Experimental Administration of the Venom of the Central Asian Blunt-Nosed Viper"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 12, Dec 71, pp 45-47

Abstract: Changes in the immunomorphological reactions of mice upon intravenous injection of the venom of the Central-Asian blunt-nosed viper (in a dose of LD_{50}) were investigated. In response to the venom, formation of antibodies to the liver took place. Profound progressive dystrophy of the liver and spleen developed. Hemodynamic shifts were also observed. The content of nucleic acids and of glycogen in the liver decreased. Immunization of the poisoned animals by intravenous injection of ovine erythrocytes on the secondday after administration of the venom increased the amount of antibody-forming cells in the spleen. The formation of plasmatic cells in the spleen and immunogenesis were inhibited by the venom.

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1/2 008 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--INDIVIDUAL HYDROCARBON COMPOSITION OF GASOLINE FROM KHODZHIBAD
PETROLEUM -U-
AUTHOR-(03)-KHODZHAYEV, G.KH., RIZAYEVA, M.K., BUROVA, YE.G.

COUNTRY OF INFO--USSR

R

SOURCE--UZB. KHIM. ZH. 1970, 14(2), 53-5

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, PROPULSION AND FUELS

TOPIC TAGS--CHEMICAL COMPOSITION, GASOLINE, CRUDE OIL, GEOGRAPHIC
LOCATION, PETROLEUM DEPOSIT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/2221 STEP NO--UR/0291/70/014/002/0053/0055

CIRC ACCESSION NO--AP0127583

UNCLASSIFIED

2/2 008

CIRC ACCESSION NO--AP0127583 UNCLASSIFIED PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE GASOLINES, D PRIME20
0.7384, CONTAINED INDIVIDUAL HYDROCARBONS AS FOLLOWS: 7 AROMATICS (5.18
WT. PERCENT), 43 PARAFFINS (50.96PERCENT), 14 CYCLOPENTANES
(6.72PERCENT), AND 16 CYCLOHEXANES (19.39PERCENT).

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--RADIATION STIMULATION OF PLANTS -U-

AUTHOR-(02)-RIZAZADE, R.R., SULEYMANOVA, N.L.

R

COUNTRY OF INFO--USSR

SOURCE--RADIOBIOLOGIYA 1970, 10(1), 98-102

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--AGRICULTURE CROP SEED, CESIUM ISOTOPE, RADIATION DOSAGE, PLANT PHYSIOLOGY, RADIATION PLANT EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0457

STEP NO--UR/0205/70/010/001/0098/0102

CIRC ACCESSION NO--AP0121131

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0121131

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RADIATION STIMULATION WAS STUDIED IN SUNFLOWER SEEDS. THE SEEDS WERE IRRADIATED WITH PRIME137 CS GAMMA RAYS IN DOSES OF 0.25-20 KR. INDIVIDUAL PHASES OF GROWING PLANTS FROM THESE SEEDS WERE OBSERVED AND BIOMETRIC MEASUREMENTS WERE MADE. FOR THE DOSE OF 2 KR A CONTINUOUS STIMULATING EFFECT WAS OBSD., WHICH WAS MANIFESTED BY THE RATE OF THE GROWTH RATHER THAN BY THE FINAL RESULT. THE GROWTH OF PLANTS FROM IRRADIATED SEEDS WAS PARTICULARLY ACCELERATED AT THE EARLY STAGES. FACILITY: NAUCH.-ISSLED. INST. ZEMLED., BAKU, USSR.

UNCLASSIFIED

USSR

UDC 669.017.3:538

RIZDVYANETSKIY, D. R.

"The Effect of Pressure on the Relationship Between the Phenomena of the Atomic Order and the Spontaneous Magnetization of Ferro- and Antiferromagnetic Alloys"

Kiev, Metallofizika, No 32, 1970, pp 104-113

Translation: In an approximation not taking correlations into account this study develops a statistical theory of the atomic order in ferro- and antiferromagnetic alloys with a structure of the β-brass type with due regard for external hydrostatic pressure. Formulas for the temperatures of second-order phase transitions and an approximate formula for the temperatures of first-order phase transitions were obtained.

It was shown that, depending on the value and sign of the parameters, pressure can both raise and lower the ordering temperature and the Curie (Neely [?]) point, as well as intensify or weaken the relationship between the atomic order and a spontaneous magnetization of magnetic sublattices of alloys.

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USSR

RIZDVYANETSKIY, D. R., Metallofizika, No 32, 1970, pp 104-113

It follows from their theory that there can be alloys which in one pressure range are ordered, and in another, are not, or in one range alloys are in a ferromagnetic state, and in another, in an antiferromagnetic state, i.e., when pressure is changed, an alloy can pass from a ferromagnetic into an antiferromagnetic state, and vice versa. Apart from other factors, the values of the pressure under which these transitions take place also depend on the degree of the atomic order or on the degree of the spontaneous magnetization of magnetic sublattices of alloys.

Bibliography: 16 entries, Illustrations: 4.

2/2

026

UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--EFFECT OF PRESSURE UN THE ARRANGEMNT OF INTERSTITIAL ATOMS IN INTERSTITIAL ALLOYS -U-

AUTHOR--RIZHKOV, V.I.

COUNTRY OF INFO--USSR

R

SOURCE--ADADEMIIA NAUK UKRAINS'KOI RSR, DOPOVIDI, SERIIA A FIZIKO-TEKHNICHNI I MATEMATICHNI NAUKI, VOL. 32, MAR. 1970 P. 277-280.

DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--PRESSURE EFFECT, BIBLIOGRAPHY, INTERSTITIAL HYDRIDE, BINARY ALLOY, ORDERED ALLOY, CRYSTAL LATTICE DISTORTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0988

CIRC ACCESSION NO--AT0118153

STEP NO--UR/0441/70/032/000/0277/0280

UNCLASSIFIED

2/2 026

CIRC ACCESSION NO--AT0118153 UNCLASSIFIED PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONSIDERATION OF A STATISTICAL THEORY DESCRIBING THE EFFECTS OF PRESSURE ON THE ARRANGEMENT OF INTERSTITIAL ATOMS IN INTERSTITIAL BINARY ALLOYS WITH A BODY-CENTERED LATTICE. THE THEORY TAKES INTO ACCOUNT THE INTERACTIONS BETWEEN THE INTERSTITIAL ATOMS IN TWO COORDINATION SPHERES BUT DISREGARDS THE LATTICE DISTORTIONS. IT IS MAINTAINED THAT INTERSTITIAL ATOMS CONTAINED IN THE LATTICE OF INTERSTITIAL BINARY ALLOYS CAN BE BROUGHT INTO A STATE OF ORDERED DISTRIBUTION IN THE OCTAHEDRAL INTERSTICES OF THE LATTICE BY APPLY PRESSURE. THE ORDERING TEMPERATURE SHIFTS PRODUCED BY PRESSURE IN INTERSTITIAL BINARY ALLOYS ARE ESTIMATED. FACILITY: AKADEMIIA NAUK UKRAINS'KOI RSR, INSTITUT METALOFIZIKI, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

USSR

KRUPITSKIY, E. I., [redacted] BARBANEL', I. S., Leningrad Electrical Engineering Institute of Communications

UDC: 681.333:621.391

"A Holographic Optical Correlator"

USSR Author's Certificate No 311282, filed 16 Mar 70, published 25 Oct 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 7, Jul 72, Abstract No 7B474 P)

Translation: A number of devices are known which realize the principle of optical correlation by using a holographic mask. However, all known schemes use two lenses which realize direct and inverse Fourier transformation of the initial function, which procedure complicates the design and increases the overall dimensions of the device. The proposed holographic optical correlator acts as the main element of optico-electronic computing devices which realizes both elementary (addition, multiplication) and integral operations on complex functions given in the region of two variables. In the special case in which the functions operated upon are equal, the holographic optical correlator may be used as a matched optical filtration device for detecting and recognizing images. V. F.

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USSR

R

RIZKIN, A. A.

UDC 621.385:530.145.6:77

"Study of the Effect of the Diffraction Zone on the Nature of a Hologram"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi. Vyp. 2 (Materials of the Scientific and Technical Conference. Leningrad Electrotechnical Communications Institute. Vyp. 2), Leningrad, 1970, pp 143-146 (from *RZh-Radiotekhnika*, No 8, Aug 70, Abstract No 8 D399)

Translation: This article contains a study of the dependence of the analytical type of Fresnel interference conversion on the diffraction zone. It is demonstrated that by taking the characteristic length as the diffraction parameter and placing it in correspondence to the diffraction conditions in various zones, it is possible provisionally to classify the holograms with respect to the analytical form of Fresnel interference conversion.

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KIZKIN, I. Kh.

math

TECHNICAL TRANSLATION

GURIA

FSTC-HT-23- 306-72

ENGLISH TITLE: Some Criteria for the Approximation of Nonlinear Characteristics (Deterministic Inputs)

FOREIGN TITLE: Not available

AUTHOR: I. Kh. Rizkin

math

SOURCE: Not available

Translated for FSTC by ACSI

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USSR

RIZKIN, I. Kh.

UDC 621.382.3:621.375.4

"Machine Harmonic Analysis of Semiconductor Nonlinear Elements (Using a Tunnel Diode as an Example)"

Poluprovodnikovyye Pribory v Tekhnike Elektrosvyazi (Semiconductor Instruments in Electrical Communication Technology), Moscow, "Svyaz'," No 7, 1971, pp 3-21

Abstract: The author finds that the use of digital computers will permit making a detailed harmonic analysis of complex nonlinear semiconductor elements. He divides the problem of harmonic analysis into two stages, that is, he first seeks the periodic solution and then strictly computes the Fourier coefficients. In order to economize on machine time, the optimal initial conditions must be sought in attempting to find the periodic solution. An analog computer is especially convenient to use for such purpose. In a wide range of ratios of γ when $m < (3-5)$ the amplitude of the harmonics grows with the m-th power of E_1. When $m > 3-5$ the deviations from this rule are quite substantial even when $\gamma \approx 0.4-0.6$. The amplitude grows more rapidly than with the m-th power of E_1. The author finds that if he allows for the inductance of the diode this will result in an enrichment of the amplitude spectrum at

USSR

RIZKIN, I. Kh., *Poluprovodnikovyye Pribory v Tekhnike Elektrosvyazi* (Semiconductor Instruments in Electrical Communication Technology), Moscow, "Svyaz'," No 7, 1971, pp 3-21

higher harmonics and that it is necessary for large values of m; its role is especially great in phase relationships. The influence of the parameter b is negligibly small for small values of m and increases with the number of the harmonic. The character of the amplitude and phase functions is the same for both of the approximations used for the volt-ampere characteristics. The author states that allowing for the nonlinearity in the transition capacitance will lead to an enrichment of the amplitude spectra of the tunnel diode current (this is especially significant for weak effects). The amplitudes of the higher (m = 3-10) harmonics may grow by an order of magnitude or more. The phase spectrum of the tunnel diode current is especially sensitive to nonlinearity in the capacitance. The changes produced by the nonlinearity become greater as the number of the harmonic increases. The article contains 6 illustrations and 9 bibliographic entries.

USSR

ALFEROVA, N. S., RIZOL', A. I., LAGOSHA, A. V. UDC 669.245:539.42:621.785.783

"Role of Dispersion Hardening (Aging) in the Embrittlement of Alloys Based on Nickel When Producing Cold-Deformed Pipe"

V sb Legirovaniye i svoystva zharoprochn. splavov (Alloying and Properties of Heat-Resistant Alloys -- collection of works), Moscow, Nauka Press, 1971, pp 124-129 (from RZh-Metallurgiya, No 4, Apr 72, Abstract 41733)

Translation: Cold-deformed pipe made of a number of aging alloys based on nickel has a tendency to rupture during stress-relieving heat treatment. The basic factors promoting rupture are determined, and the causes of rupture are established. The decisive role of aging in the rupture of cold-deformed pipe during heat treatment is demonstrated. Rupture takes place in the intense aging temperature range. The role of the residual stresses in rupture is revealed. It is established that pipe made of EI827 and EI437B alloys which after deformation have significant residual tensile stresses are subject to rupture. Such pipe includes all drawn pipe and pipe rolled with small reductions along the wall (8-10%) which is connected with a sharply expressed inhomogeneity of deformation. Increasing the degree of reduction during rolling insures more uniform deformation, more uniform aging, and the practical absence

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USSR

ALFEROVA, N. S., et al., Legirovaniye i svoystva zharoprochn. splavov, 1971, pp 124-129

of residual stresses, which as a result prevents the tendency of the rolled pipe toward rupture.

The basic cause of pipe rupture during heat treatment is localization of the aging process under the conditions of decreased relaxation capacity of the alloy and the presence of residual stresses of the first type. Measures were developed for eliminating tendency of cold-deformed pipe made of aging alloys based on nickel toward rupture during their stress-relief heat treatment. Three illustrations, one table, and a 2-entry bibliography.

USSR

UDC 620.172.24

ALPATOV, Ye. N. and RIZOL', A. I., All Union Scientific Research and Design Technology Institute of the Pipe Industry, Dnepropetrovsk

"On a Method of Determining Actual Strengh in Ductile Fracture"

Moscow, Zavodskaya Laboratoriya, Volume 6, 71 pp 713-718

Abstract: Tension fractures of annealed or cold worked cylindrical steel samples show a characteristic double cone or cone and cup structure. Examination shows that the cone is divided into three basic zones: a central plateau, steeply sloping sides and a less steeply sloping periphery. Each of these zones has its own characteristics. In these experiments, particular attention was paid to impact hardness. Measurements were made of samples at various stages of breakdown as well as of broken samples, with particular attention to obtaining uniform, repeatable results. Statistical processing of these results shows a clear pattern of increasing hardness from the center of the sample to the periphery. This is the direction of propagation of the primary fracture. The pattern contradicts the assumptions of GOST (State Standard) 1497-61.

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1/2 026 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--EFFECT OF CHROMIUM, MOLYBDENUM, AND PHOSPHORUS ON THE SUSCEPTIBILITY OF LOW CARBON, CHROMIUM STEELS TO REVERSIBLE TEMPER

AUTHOR-(02)-RIZOL, A.I., VASHCHILO, T.P.

R

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (1), 246

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--CHROMIUM, MOLYBDENUM, PHOSPHORUS, TEMPER BRITTLENESS, METAL CRACKING, CHROMIUM STEEL, LOW CARBON STEEL, METAL TUBE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0162 STEP NO--UR/0370/70/000/001/0246/0246

CIRC ACCESSION NO--AP0054958

UNCLASSIFIED

2/2 026

CIRC ACCESSION NO--AP0054958 UNCLASSIFIED PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REVERSIBLE TEMPER BRITTLENESS OF LOW C, CR STEELS IN INCREASED BY INCREASING CONTENT IN CR AND P. FOR TUBES COLD ROLLED FROM THESE STEELS, THE POSSIBILITY OF CRACKING IS NOT EXCLUDED. CRACKING OF TUBES IS LESS FOR STEELS WITH LOWER CR CONTENTS AS WELL AS FOR CR STEELS CONTG. 0.4-0.6PERCENT MO WITH LOW P CONTENTS.

UNCLASSIFIED

USSR

RIZPOLOZHENSKIY, N. I., and YELISEYENKOVA, R. M., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Kazan' Branch of the Academy of Sciences USSR

UDC 542.91:547.1'118

"Esters of the Trivalent Phosphorus Thioacids. 14 Communication. Reaction of Thiophosphonous Acid Chlorides With β-Ketoalcohols in Presence of a Base"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 12, Dec 73, pp 2749-2755

Abstract: Reaction of S-alkylethyl(phenyl)chlorothiophosphonites with β-ketoalcohols in presence of triethylamine leads to the formation of O-γ-ketoalkyl-S-alkylethyl(phenyl)thiophosphinates, colorless liquids soluble in organic solvents, easily oxidizable in air. O-γ-ketoalkyl-S-alkylethyldithiophosphonates obtained by addition of sulfur could only be separated on a molecular film distillation column. O-γ-ketoalkyl-S-alkylethyl(phenyl)thiophosphonites isomerize easily into S-alkyl-γ-ketoalkylethyl(phenyl)thiophosphinates.

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USSR

UDC 542.91:547.1'118

YELISEYENKOVA, R. M., RIZPOLOZHENSKIY, N. I., and AKAMSIN, V. D., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Kazan' Branch of the Academy of Sciences USSR

"Esters of the Trivalent Phosphorus Thioacids. Communcation 15. Reaction of Thiophosphonous Acid Chlorides and Thiophosphorous Acid Dichlorides With Propargyl Alcohol and Propargyl Mercaptan"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 12, Dec 73, pp 2755-2758

Abstract: Reaction of S-alkylalkyl(aryl)chlorothiophosphonites with propargyl alcohol or propargyl mercaptan in presence of a base leads to the formation of S-alkylalkyl(aryl)allenylthio(dithio)phosphinates which heated with sodium alkoxide are converted to S-alkylalkyl(aryl)propynyl-1-thiophosphinates. Alkyl(aryl)dichlorothiophosphites react with propargyl alcohol forming S-alkyl(aryl)allenylchlorothiophosphonates, while the reaction of ethyldichlorophosphine with propargylmercaptan leads to the formation of ethylallenylchlorothionephosphinate.

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USSR

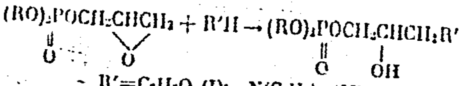
UDC 542.91:547.1'118

STEPASHKINA, L. V., RIZPOLOZHENSKIY, N. I.

"Glycidyl Esters of Phosphorus Acids and Their Characteristics. 5. Interaction of Dialkylglycidyl Phosphates With Diethylamine, Ethyl Alcohol and Acetic Anhydride"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, 1973, pp 2585-2589

Abstract: Dialkylglycidyl phosphates react with diethylamine and ethanol with the formation of β-oxy-γ-diethylaminopropyldialkyl phosphates and β-oxy-γ-ethoxypropyldialkyl phosphates



$$(RO)_2\underset{\underset{O}{\|}}{P}OCH_2CH\underbrace{CH_2}_{O} + R'H \rightarrow (RO)_2\underset{\underset{O}{\|}}{P}OCH_2\underset{\underset{OH}{|}}{CH}CH_2R'$$

$R'=C_2H_5O$ (I); $N(C_2H_5)_2$ (II)

In the infrared spectra of (I) and (II) there is a band in the ~3,400 cm^{-1} range characteristic of a strongly associated OH group. The direction of opening of the ring is confirmed by the reaction with diethylchlorophosphite.
By the interaction of dialkylglycidyl phosphates with diethylamine, ethyl alcohol and acetic anhydride, β-oxy-γ-diethylaminoprophyl, β-oxy-γ-ethoxypropyl and β-γ-diacetoxypropyldialkyl phosphates are obtained respectively.

USSR

STEPASHKINA, L. V., RIZPOLOZHENSKIY, N. I., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, 1973, pp 2585-2589

In the case of ethyl alcohol the epoxy ring is opened on the side of the primary carbon atom.

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UDC 541.63:547.1'118

USSR

SHAGIDULLIN, R. R., SAMITOV, YU. YU., MYKHAMETOV, F. S., and RIZPOLOZHENSKIY, N. I., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Acad. Sc. USSR

"Stereochemistry of Organophosphorus Compounds. i Communication. Configuration and Conformations of 2-Substituted Oxaphospholanols-3"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 7, Jul 72, pp 1604-1612

Abstract: In continuation of their studies, the reaction of diacid chlorides of phosphorous, amidophosphorous, and alkyl(aryl)phosphonous acids with diacetone alcohol in presence of triethylamine was investigated. In two cases of the reaction of the diacid chlorides of diethylamidophosphorous and phenylphosphonous acids with diacetone alcohol two pairs of products were isolated with sharp melting points 125-126° and 118-119° for one pair, and 135-136° and 164-165° for the other pair. Analytical data showed these pairs to have identical composition. Analysis of IR and NMR spectra showed them to be configurational isomers of

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UDC 542.91:547.1'118

USSR

STEPASHKINA, L. V., AKAMSIN, V. D., and RIZPOLOZHENSKIY, N. I., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Synthesis and Properties of the Glycidyl Esters of Phosphoric Acid. 4 Communication. Synthesis of o-Glycidyl-S,S-dialkyldithiophosphites and Some of Their Properties"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 2, Feb 72, pp 380-384

Abstract: Reaction of glycidol with S,S-dialkyldithiochlorophosphite yields O-glycidyl-S,S,-dialkyldithiophosphites, b.p. 93-95°/0.008 mm, compounds with unpleasant odor, soluble in organic solvents, insoluble in water. These compounds react with sulfur yielding O-glycidyl-S,S-diethyltrithiophosphate, b.p. 116-117°/0.01 mm, and can be oxidized with nitrogen oxides to thiophosphates. The starting S,S-dialkyldithiochlorophosphites were obtained by the reaction of S-alkylthiodichlorophosphites with mercaptans in presence of a base. S-alkylthiodichlorophosphites were synthesized by reacting mercaptans with phosphorus trichloride. They were found to disproportionate on storage to PCl_3 and S,S-dialkyldithiochlorophosphites. In each series a number of analogues was synthesized, their physical properties being reported.

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USSR UDC 542.91:547.1'118

RIZPOLOZHENSKIY, N. I., and MUKHAMETOV, F. S., Institute of Organic and Physical Chemistry imeni A. YE. Arbuzov, USSR Academy of Sciences

"First Stage of the Formation of Oxaphospholanols"

Moscow, Izvestiya Akad. Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 72,
pp 175-176

Abstract: As a confirmation (of the first stage) of their earlier proposed scheme representing the reaction between diacetone alcohol with the phosphoryl dichlorides (trivalont phosphorus), the authors used the infrared method to study the interaction of β-acetylethyl alcohol with alkyldichlorophosphates in the presence of triethylamine, which produced alkyl-di-(γ -ketobutyl) phosphites. Analytical data and infrared chart accompany the paper.

UDC 542.91:661.718.1

USSR

MUKHAMETOV, F. S., RIZPOLOZHENSKIY, N. I., and GOL'DFARB, E. I., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Reactions of Ketoalcohols with Organophosphorus Compounds. 5 Communication. Reaction of β-Ketoalcohols with Chlorophosphines"

Moscow, Izvestiya Akademii Nauk SSSRm Seriya Khimicheskaya, No 10, Oct 71, pp 2221-2225

Abstract: Reaction of β-ketoalcohols (I) with chlorophosphines (II) in the absence of organic bases yields tertiary phosphine oxides: ethylphenylphosphine chloride and β-acetoethyl alcohol give 3-ketobutylethylphenylphosphine oxide, b.p. 135-137°/0.015 mm, n_D^{20} 1.5395, d_4^{20} 1.1107. The reaction was monitored by means of IR spectroscopy. On the basis of spectral analysis it was proposed that the first step in the reaction of β-ketoalcohols with chlorophpsphines is the formation of an acid R'R"P(:O)H and an unsaturated ketone R"'R""C:CHC(:O)CH_3 which then combine to yield the final product.

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USSR UDC 547.448.341.26'118.07

RIZPOLOZHENSKIY, N. I., and AKAMSIN, V. D., "Order of the Red Banner of Labor" Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov

"A Method of Making Ketothiolphosphinate Esters"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 33, Soviet Patent No 284988, class 12, filed 14 Jul 69, published 29 Oct 70, p 25

Translation: This Author's Certificate introduces: 1. A method of making ketothiolphosphinate esters of general formula

$$R\ P(O)(SR_1)CR_4(R_5)CH(R_3)COR_2$$

where R is an alkyl, R_1 and R_2 are hydrocarbon radicals, R_3, R_4 and R_5 are hydrogen or hydrocarbon radicals. As a distinguishing feature of the patent, thiophosphonous acid chloride esters are allowed to react with α,β-unsaturated ketones in the presence of aliphatic carboxylic acids with subsequent isolation of the products by conventional methods. 2. A modification of this method is distinguished by the fact that acetic acid is used as the aliphatic carboxylic acid.

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UDC 547.341.07

USSR

RIZPOLOZHENSKIY, N. I., and AKAMSIN, V. D., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov

"A Method of Synthesizing Allylalkyl(aryl)thiophosphinic Acid Halides"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 5, Feb 71, Author's Certificate No 292983, Division C, filed 22 May 69, published 15 Jan 71, p 101

Translation: This Author's Certificate introduces: 1. A method of making allylalkyl(aryl)thiophosphinic acid halides. As a distinguishing feature of the patent, an alkyl(aryl)dihalophosphine is interacted with allylmercaptan with the application of heat. 2. A modification of this method distinguished by the fact that the process is done at a temperature of 40-100°C. 3. A modification of this method in which the process is done in an organic solvent such as methylene chloride.

UDC 541.127.3:542.938:547.26'118

USSR

BEL'SKIY, V. Ye., BEZZUBOVA, N. N., AKAMSIN, V. D., YELISEYENKOV, V. N., RIZPOLOZHENSKIY, N. I., and PUDOVIK, A. N., Corresponding Member of the ~~USSR Academy of~~ Sciences

"Reactivity of Phosphonic Acid Esters and Their Thio-Analogs in Alkaline Hydrolysis"

Moscow, Doklady Akademii Nauk SSSR, Vol 197, No 1, March-April 1971, pp 85-87

Abstract: Nucleophilic substitution on the phosphorous atom decreases on replacement of the phosphoryl oxygen by sulfur. This was established as a result of studying the kinetics of hydrolysis of various esters and acid chlorides of phosphoryl oxygen. However, it still remained unclear whether the reaction rate changed to an equal extent on replacement of the P=O by P=S for a series of compounds with close structure. This paper contains a study of the kinetics of alkaline hydrolysis of some esters and thio esters of substituted phosphonic and thiophosphonic acids. The data obtained permits the conclusion to be drawn that the change in reactivity on converting from phosphoryl to thiophosphoryl compounds essentially depends on the nature of the substitutions on the phosphorus, and a decrease in the reaction rate constant does not

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BEL'SKIY, V. Ye., et al, Doklady Akademii Nauk SSSR, Vol 197, No 1, March-April 1971, pp 85-87

always occur. The mechanism of this effect is discussed, the experimental procedure is presented, and tables of values are given for the activation energy E and the pre-exponential factor A in the equation $K = A \exp(-E/RT)$ for the reaction with OH^--ion, and the hydrolysis rate constants of KOH.

A definite tendency toward an increase in absolute magnitude of the pre-exponential factor is noted on the replacement of oxygen atoms by sulfur in phosphonates. If it is considered that nucleophilic substitution on the phosphorus requires the formation of a pd-bond in the activated complex, the increase in the pre-exponential factor indicates high availability of the d-orbitals of phosphorus in the thio-derivatives for nucleophilic attack.

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UDC 542.91+661.718.1

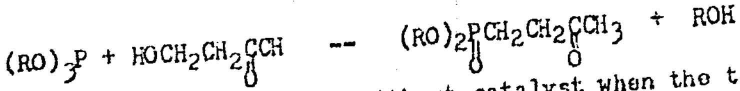
USSR

RIZPOLOZHENSKIY, N. I., MUKHAMETOV, F. S., Institute of Organic and Physical Chemistry im A. Ye. Arbuzov, Academy of Sciences USSR

"Reactions of Ketoalcohols with Organophosphorus Compounds. Communication 4. Synthesis of gamma-Ketophosphonale Esters"

Moscow, Izvestiya Akademiyi Nauk SSSR, Seriya Khimicheskaya, No 5, May 70, pp 1087-1092

Abstract: It was found that on heating trialkyl phosphites with 3-ketobutanol to 140-160° in presence of metallic sodium, a good yield of the esters of gamma-ketophosphonic acids is obtained



$$(RO)_3P + HOCH_2CH_2\underset{O}{\underset{\|}{C}}CH \; -- \; (RO)_2\underset{O}{\underset{\|}{P}}CH_2CH_2\underset{O}{\underset{\|}{C}}CH_3 + ROH$$

The above reaction takes place also without catalyst when the temperature is raised and the time prolonged. The authors studied the reaction of 3-ketobutanol with trialkyl phosphites; the reaction of 3-ketobutanol with phosphonites and phosphinites; and the hydrolysis of diethyl gamma-ketobutylphosphonate. It was found that trialkyl(aryl) phosphites and phosphonites react with

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USSR

RIZPOLOZHENSKIY, N. I., et al, Izvestiya Akademiyi Nauk SSSR, Seriya Khimicheskaya, No 5, May 70, pp 1087-1092

3-ketobutanol with formation of the esters of gamma-ketobutyl-phosphonic and phosphinic acids, and the phosphinites -- with formation of tertiary phosphine oxides.

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UDC 542.91 + 661.718.1

USSR

RIZPOLOZHENSKIY, N. I., AKAMSIN, V. D., and YELISEYENKOVA, R. M., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Acad. Sc. USSR

"Reaction of Dihalophosphines With Allylmercaptan"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 71, p 198

Abstract: Alkyldihalophosphines react with allylmercaptan yielding allylalkylthiophosphinic acid halides. To 33 g ethyldibromophosphine in 30 ml CH_2Cl_2 11.1 g allylmercaptan was added dropwise in an inert atmosphere, followed by 3 hr under reflux. After distillation of the reaction mixture allylethylthiophosphinic acid bromide was obtained, b.p. 122-123°/12 mm, n_D^{20} 1.5798, d_4^{20} 1.4196. Analogously allylchloromethylthiophosphinic acid chloride was obtained, b.p. 112-114°/12 mm, n_D^{20} 1.5700, d_4^{20} 1.3267.

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UDC 542.91 + 661.718.1

USSR

ARBUZOV, B. A., RIZPOLCZHENSKIY, N. I., VIZEL', A. O., IVANOVSKAYA, K. M., MUKHAMETOV, F. S., and GOL'DFARB, E. I., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Acad. Sc. USSR

"Synthetic Routes of 1,2-Oxaphospholene Derivatives in the Reaction of β-Ketoalcohols With Acid Chlorides of Trivalent Phosphorus Acids"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 71, pp 117-125

Abstract: In studying the reaction of β-ketoalcohols with acid chlorides of trivalent phosphorus acid, a series of 1,2-oxaphospholene derivatives was obtained. The reaction took place in several definitely marked stages. For example, dropwise addition of phenyldichlorophosphine to cooled diacetone alcohol resulted in an initial exothermic reaction producing a precipitate; the liquid portion becoming yellow, and an odor of mesitylene oxide becoming noticeable. The second half of the process occurred slowly, the precipitate disappeared, the reaction mixture becoming again almost colorless. When the volatile pro-

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ARBUZOV, B. A., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 71, pp 117-125

ducts were removed, the reaction mixture crystallized, and finally liquefied again on distillation. A five stage mechanism has been proposed for this reaction: the first stage consisting of an alcoholysis of acyl chloride leading to the formation of an acid which then reacts with more starting material to produce a new acyl chloride, a very reactive compound which adds rapidly to the unsaturated ketone formed in the first stage to yield a ketochloride $RP(:O)Cl-CR_2CH_2COCH_3$ which isomerizes to 1,2-oxaphospholane. In the final step a molecule of HCL are not conjugated yielding 1,2-oxaphospholene.

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1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--THIOSTERS WITH TRIVALENT PHOSPHORUS -U-

AUTHOR-(03)-RIZPOLOZHENSKIY, N.I., AKAMSIN, V.D., DOSOVA, T.M.

R

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA KHIMICHESKAYA, 1970, NR 3, PP 622-625
DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MERCAPTAN, ORGANIC PHOSPHORUS COMPOUND, PHOSPHORUS SULFIDE, AMIDE, SELENIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/1318 STEP NO--UR/0062/70/000/003/0622/0625

CIRC ACCESSION NO--AP0136706
UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0136706

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS GRAPHIC INFORMATION. PHENYLDICHLOROPHOSPHINE REACTS WITH ALKYLMERCAPTAINS TO FORM ALKYLTHIOPHENYLCHLOROPHOSPHINES. THE LATTER REACT WITH AMINES IN THE ABSENCE OF BASE TO FORM THIOESTERAMIDES OF PHENYLPHOSPHONOUS ACID, WHICH ARE OXIDIZED BY NITROGEN DIOXIDE TO THE CORRESPONDING PHOSPHONATE ESTERS. FACILITY: INSTITUT ORGANICHESKOY I FIZICHESKOY KHIMII IMENI A. YE. ARBUZOVA, AN SSSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--THIOESTERS WITH TRIVALENT PHOSPHORUS -U-

AUTHOR-(03)-RIZPOLOZHENSKIY, N.I., AKAMSIN, V.D., DOSOVA, T.M.

R

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA KHIMICHESKAYA, 1970, NR 3, PP 622-625

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC PHOSPHORUS COMPOUND, MERCAPTAN, AMIDE, ESTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/1435
STEP NO--UR/0062/70/000/003/0622/0625

CIRC ACCESSION NO--AP0136771

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0136771
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS GRAPHIC INFORMATION. PHENYLDICHLOROPHOSPHINE REACTS WITH ALKYLMERCAPTAINS TO FORM ALKYLTHIOPHENYLCHLOROPHOSPHINES. THE LATTER REACT WITH AMINES IN THE ABSENCE OF BASE TO FORM THIOESTERAMIDES OF PHENYLPHOSPHONOUS ACID, WHICH ARE OXIDIZED BY NITROGEN DIOXIDE TO THE CORRESPONDING PHOSPHONATE ESTERS. FACILITY: INSTITUT ORGANICHESKOY I FIZICHESKOY KHIMII IMENI A. YE. ARBUZOVA, AN SSSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--REACTIONS OF OXAPHOSPHOLANOLS WITH PHOSPHORUS ACID MONOCHLORIDES
-U-
AUTHOR-(03)-RIZPOLOZHENSKIY, N.I., MUKHAMETOV, F.S., GOLDFARB, E.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 683-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HETEROCYCLIC BASE COMPOUND, ORGANIC PHOSPHORUS COMPOUND,
ORGANIC OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1760 STEP NO--UR/0062/70/000/003/0683/0685

CIRC ACCESSION NO--AP0123561
UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123561

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REACTION OF I WITH R PRIME1 R PRIME2 PCL IN THE PRESENCE OF ET SUB3 N IN C SUB6 H SUB6 5 HR AT REFLUX GAVE 42-73PERCENT II (R, R PRIME1, AND R PRIME2 SHOWN): SHOWN ON MICROFICHE. FACILITY: INST. ORG. FIZ. KHIM., KAZAN, USSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--REACTIONS OF OXAPHOSPHOLANOLS WITH DIALKYL CHLOROPHOSPHITES -U-

AUTHOR-(03)-RIZPOLOZHENSKIY, N.I., MUKHAMETOV, F.S., GOLDFARB, E.I.

R

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA KHIMICHESKAYA, 1970, NR 3, PP 683-685

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HETEROCYCLIC BASE COMPOUND, ORGANIC PHOSPHORUS COMPOUND, ALKYL PHOSPHITE, HETEROCYCLIC OXYGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1301 STEP NO--UR/0062/70/000/003/0683/0685

CIRC ACCESSION NO--AP0136702

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136702

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS GRAPHIC INFORMATION. ALKYL DICHLOROPHOSPHITES REACT WITH TWO MOLES OF DIACETONE ALCOHOL IN THE PRESENCE OF ORGANIC BASES TO FORM 2-ALKOXY-2-KETO-3,3,5-TRIMETHYL-1, 2-OXA-3-PHOSPHALANOLS (I). THE HYDROXYL IN I REACTS WITH DIALKYL CHLOROPHOSPHITES: (FORMULA SHOWN ON MICROFICHE). AT ROOM TEMPERATURE THE REACTION IS SLUGGISH DUE TO INTER AND INTRAMOLECULAR HYDROGEN BONDING, EVEN AT LOW REAGENT CONCENTRATIONS; STERIC HINDRANCE OF THE TERTIARY HYDROXYL IS PROBABLY ALSO IMPORTANT. THE REACTION REQUIRES FOUR TO FIVE HOURS IN BOILING BENZENE, IN THE PRESENCE OF TRIETHYLAMINE. (SHOWN ON MICROFICHE). FACILITY: INSTITUT ORGANICHESKOY I FIZICHESKOY KHIMII IMENI A. YE. ARBUZOVA, AN SSSR.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--REACTION OF BETA ACETOISOPROPYL ALCOHOL WITH ETHYLPHENYLCHLOROPHOSPHINE -U-

AUTHOR-(02)-MUKHAMETOV, F.S., RIZPOLOZHENSKIY, N.I.

R

COUNTRY OF INFO--USSR

SOURCE--AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 499

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PROPANOL, CHLORINATED ORGANIC COMPOUND, ORGANIC PHOSPHORUS COMPOUND, IR SPECTRUM, NMR SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0835 STEP NO--UR/0062/70/000/002/0499/0499

CIRC ACCESSION NO--AP0119739
UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119739

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADDING 21.6 G ETPHPCL AT MINUS15DEGREES UNDER CO SUB2 TO 12.8 G ACCH SUB2 CHMEOH (HCL EVOLUTION) GAVE ON THE FOLLOWING DAY 45PERCENT ETPHP(O) CHMECH SUB2 AC, B SUBO TIMES 01 142-5DEGREES, N PRIME20 SUBD 1.5370, D PRIME20 1.0895. IR AND NMR SPECTRAL DATA ARE GIVEN. FACILITY: INST. ORG. FIZ. KHIM. IM. ARBUZOVA, KAZAN, USSR.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--REARRANGEMENT OF THIOPHOSPHONOUS ACID CHLORIDE ESTERS INTO THIOPHOSPHINIC ACID CHLORIDES -U-

AUTHOR-(02)-RIZPOLOZHENSKIY, N.I., AKAMSIN, V.D.

R

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 728

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC PHOSPHORUS COMPOUND, ORGANIC SULFUR COMPOUND, INTRAMOLECULAR MECHANICS, ESTER, CHLORINATED ORGANIC COMPOUND, ACID CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0765 STEP NO--UR/0062/70/000/003/0728/0728

CIRC ACCESSION NO--AP0124435
UNCLASSIFIED

CIRC ACCESSION NO--AP0124435

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FOLLOWING ARBUZOV TYPE REARRANGEMENT WAS DESCRIBED FOR THE FIRST TIME FOR RPCLSR PRIME1, WHICH UNDER THE INFLUENCE OF CATALYTIC AMTS. OF ALKYL HALIDES R PRIME2 X FORM RR PRIME1 P(S)CL. THUS, 24.4 G PHP(SPR)CL AND 5 DROPS MEI IN A SEALED TUBE HEATED 10 HR AT 280DEGREES GAVE 62PERCENT PRPHP(S)CL, B SUB0.02 91-3DEGREES, N PRIME20 SUBD 1.5932, D PRIME20 1.1879. ETP(SET)CL AND MEI HEATED 14 HR AT 170DEGREES GAVE 54PERCENT ET SUB2 P(S)CL, B SUB10 92-3DEGREES, 1.5316, 1.1462. FACILITY: INST. ORG. FIZ. KHIM. IM. ARBUZOVA, KAZAN, USSR.

1/2 013 UNCLASSIFIED PROCESSING DATE—30OCT70

TITLE—ESTERS OF PHOSPHORUS III THIO ACIDS. 9. AMIDO ESTERS OF PHENYLTHIOPHOSPHONOUS ACID -U-

AUTHOR-(03)-RIZPOLOZHENSKIY, N.I., AKAMSIN, V.D., DOSOVA, T.M.

COUNTRY OF INFO—USSR

R

SOURCE—IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 622-5

DATE PUBLISHED————70

SUBJECT AREAS—CHEMISTRY

TOPIC TAGS—AMIDE, MERCAPTAN, ORGANIC PHOSPHORUS COMPOUND, ESTER, ORGANIC SYNTHESIS

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAME—2000/0807 STEP NO—UR/0062/70/000/003/0622/0625

CIRC ACCESSION NO—AP0124476

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124476

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REACTION OF EQUIMOLAR AMTS. SHOWN ON MICROFICHE. FACILITY: INST. ORG FIZ. KHIM. IM. ARBUZOVA, KAZAN, USSR.

UNCLASSIFIED

USSR R UDC 542.938 + 661.718.1

RIZPOLOZHENSKIY, N. I., MUKHAMETOV, F. S., and SAMITOV, YU. YU., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Kazan, Academy of Sciences USSR

"Hydrolysis of Oxaphospholanols"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, Vol 4, Apr 70, pp 910-912

Abstract: On the basis of proton magnetic resonance spectral analysis, the authors claim that acid hydrolysis of 2-alkoxy-2-keto-3,5,5-trimethyl-1,2-oxaphospholanol-3 occurs with preservation of cyclic structure, yielding 2-hydroxy-2-keto-3,5,5-trimethyl-1,2-oxaphospholene-3. When the reaction is carried out in basic medium, 2-ethyl-2-keto-3,5,5-trimethyl-1,2-oxaphospholanol-3 yields ethyl-(1,3-dihydroxy-1,3-dimethylbutyl)-phosphinic acid.

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USSR R UDC: 542.91-661.718.1

RIZPOLOZHENSKIY, N.I., AKAMSIN, V.D., DOSOVA, T.M., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Esters of Thioacids of Trivalent Phosphorus. Report 9. Amido Esters of Phenylthiophosphonous Acid"

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Khimicheskaya, No 3, Mar 70, pp 622-625

Abstract: Continuing their investigation of the properties of trivalent phosphorus thioacid derivatives, the authors present data on the synthesis and some chemical properties of amido esters of phenylthiophosphonous acid. The esters are synthesized by the reaction of acid chloride esters of phenylthiophosphonous acid with dialkylamines. The products are oxidized by nitrogen oxides to give S-alkyldialkylamidophenylthiophosphonates. Amido esters of phenylthiophosphonous acid attach sulfur and selenium to form S-alkyldialkylamidophenyldithiophosphonates and S-alkyldialkylamidophenylthioselenophosphonates. The atomic refraction of selenium in S-alkyldialkylamidophenylthioselenophosphonates is 14.70.

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USSR

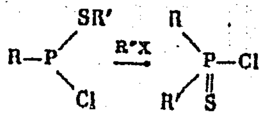
UDC: 542.952-661.718.1

RIZPOLOZHENSKIY, N.I., AKAMSIN, V.D., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Regrouping of Thiophosphonyl Chloride Esters into Thiophosphinous Acid Chlorides"

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Khimicheskaya, No 3, Mar 70, p 728

Abstract: It was found that thiophosphonyl chloride esters undergo Arbuzov regrouping under the effect of catalytic quantities of alkyl halides to form thiophosphinous acid chlorides.



Propylphenylthiophosphinous acid chloride was synthesized by heating propylthiophenylphosphonyl chloride with methyl iodide, and diethyllthiophosphinous acid chloride was produced in an analogous reaction between ethylthioethylphosphonyl chloride and methyl iodide. The physical and chemical constants of the resultant chlorides are given.

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UDC: 542.938-661.718.1

USSR

BEL'SKIY, V.YE., MOTYGULLIN, G.Z., YELISEYENKOV, V.N., RIZPOLOZHENSKIY, N.I., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Hydrolysis of Phosphorus Acid Esters Which Contain the P-H Bond"

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Khimicheskaya, No 3, Mar 70, pp 565-568

Abstract: Continuing their investigation of the kinetics of hydrolysis of phosphorus acid esters containing the P-H bond, the authors studied hydrolysis of a number of alkyl esters of ethylphosphinous acid of the general formula $(RO)C_2H_5P(O)H$ in water at different temperatures. It was found that the rate constants for hydrolysis decrease with an increase in length and branching of the alkyl radicals. Exceptions to this rule are sec.- and tert.-butyl esters which have a higher rate of hydrolysis due to S_N1 splittering at the carbon atom in the alcohol group. It is probable that the P-O bond is broken in the other esters by a mechanism analogous to that observed in dialkylphosphites.

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USSR

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UDC 542.91 + 661.718.1

MUKHAMETOV, F. S., and RIZPOLOZHENSKIY, N. I., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Interaction of β-Acetoisopropyl Alcohol With Ethylphenylchlorophosphine"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 2, Feb 70, p 499

Abstract: In studying the reaction of ketols with different organophosphorus compounds, the authors found that the interaction of ethylphenylchlorophosphine with β-acetoisopropyl alcohol gives ethylphenyl-(1-methyl-3-ketobutyl)phosphine oxide.

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USSR

UDC 542.91 + 661.718.1

RIZPOLOZHENSKIY, N. I., and AKAMSIN, V. D., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"The Synthesis and Some Properties of O-Phenyl-S-Alkyl Dialkylamidophosphites"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 69, p 1395

Abstract: The authors report the synthesis of O-phenyl-S-alkyl diethylamidophosphites by the interaction of phenyl diethylamidochlorophosphite with mercaptans in the presence of triethylamine in ether at -10÷-15°. The resultant O-phenyl-S-alkyl diethylamidophosphites add sulfur and selenium and are oxidized by nitrogen dioxide to give the corresponding amidothio(seleno)phosphates.

USSR

UDC 539.124:547.1'118:541.57:546.11

SHAGIDULLIN, R. R., CHERNOVA, A. V., MUKHAMETOV, F. S., RIZPOLOZHENSKIY,
N. I., Institute of Organic and Physical Chemistry imeni A, Ye. Arbuzov of
the USSR Academy of Sciences

"Study of Electron Effects in a Series of 2-substituted oxaphospholanoles-3 by the H-Bond Method"

Moscow, Izvestiya Akdemii Nauk SSSR- Seriya Khimicheskaya, No 11, 1972,
pp 2585-2587

Abstract: The studies of the electron structure of phosphorus-containing compounds (R. R. Shagidullin, et al., Izv. AN SSSR. Ser. khim. 1123, 1966; Dokl. AN SSSR. No 173, 135, 1967; R. R. Shagidullin, et al., Izv. AN SSSR. Ser. khim. 183, 1971; R. R. Shagidullin, et al., Izv. AN SSSR. Ser. khim., 1168, 1971) are continued by applying the method introduced there to 2-substituted oxyphospholanoles-3. The proximity of the P atom causes a change in the acceptor capacity of the diethylamino group with respect to the proton. The variation in the acceptor capacity is connected with delocalization of the electron cloud of the substitution on the P atom. This phenomenon is explained by partial shifting of the unshared pair of electrodes of the nitrogen atom to the phosphorus.

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USSR

UDC 542.91:547.1'118

MUKHAMETOV, F. S., RIZPPOLOZHENSKIY, and SAMITOV, YU. YU., Institute of Organic and Physical Chemistry imeni A. YE. Arbuzov, USSR Academy of Sciences

"Reactions of Keto-Alcohols with Organophosphorus Compounds. 6. Reaction Between β-Keto-alcohols and Phosphorodichlorides"

Moscow, Izvestiya Akad. Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 72, pp 72-78

Abstract: Reactions between the keto-alcohols and the phosphorodichlorides have occupied several study groups in the past three years; however, the control of the phosphorus component during the reaction with the use of infrared microscopy has proved difficult.

The authors undertook control using the nuclear-magnetic-resonance P^{31} method, in the reaction between diacetone and β-acetoethyl alcohols with phenyldichlorophosphine.

The five-stage character of the reaction was clearly confirmed (reported earlier by B. A. ARBUZOV eta al).

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USSR

UDC 615.216.5.015.4:[612.453+612.44

ROBU, A. I., and KUZNETSOVA, T. S., Chair of Human and Animal Physiology, Kishinev University imeni V. I. Lenin

"The Effects of Seduxen on Adrenocortical and Thyroid Function"

Moscow, Farmakologiya i Toksikologiya, Vol 35, No 2, Mar/Apr 72, pp 206-207

Abstract: In rats, a single intraperitoneal dose of 0.5 mg of seduxen (a tranquilizer) per 100 g body weight causes an increase in corticosteroid concentration in the adrenal cortex (from 1344 mcg% in the control to 2492 mcg%), in total plasma corticosteroids (from 16 to 40 mcg%), in protein-bound plasma corticosteroids (from 14 to 35 mcg%), and in free plasma corticosteroids (from 2 to 5 mcg%) in 15 min. However, after daily administration of seduxen for 7 days, even though corticosteroid secretion is increased, plasma concentration of free corticosteroids is below normal (0.7 mcg%) because a larger portion is bound by plasma proteins. Thus, although seduxen stimulates adrenocortical function, it causes a relative hormonal deficiency after repeated intake. The compound exerts no significant effect on the thyroid gland.

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1/2 022 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--STRENGTH AND ELASTICITY OF BIRCHWOOD TREATED AND DENSIFIED WITH AMMONIA -U-
AUTHOR-(03)-BERZINS, G., ROCENS, K., RUMBA, A.

R

COUNTRY OF INFO--USSR

SOURCE--HOLZTECHNOLOGIE 1970, 11(1), 48-52

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--WOOD, AMMONIA, CONSTRUCTION MATERIAL, COMPRESSIVE STRENGTH, BENDING STRENGTH, ELASTICITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO-----FD70/605018/D03 STEP NO--GE/0150/70/011/001/0048/0052

CIRC ACCESSION NO--AP0140832
UNCLASSIFIED

2/2 022

CIRC ACCESSION NO--AP0140832 UNCLASSIFIED PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COMPRESSIVE, SHEAR, AND BENDING STRENGTHS, AND THE MODULUS OF ELASTICITY IN TENSION, AND COMPARISON ALONG THE GRAIN AND IN SHEARING AND BENDING WERE EXAMD. FOR BIRCHWOOD PLASTICIZED WITH NH SUB3 AND MECH. DENSIFIED. THE RESULTS, STATISTICALLY CALCD. AND EXPRESSED BY REGRESSION EQUATIONS, ARE CORRELATED TO PERMIT A SIMPLIFIED CALCN. OF STRUCTURAL ELEMENTS OF PLASTICIZED WOOD.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--USE OF GAMMA RESONANCE SPECTROSCOPY TO STUDY COORDINATION IN SOLUTIONS OF ORGANOTIN MONOHALIDES -U-

AUTHOR-(05)-GOLDANSKIY, V.I., ROCHEV, V.YA., KHRAPOV, V.V., KRAVTSOV, D.N., ROKHLINA, YE.M.

COUNTRY OF INFO--USSR

R

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(1), 134-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MOSSBAUER EFFECT, ORGANOTIN COMPOUND, COORDINATION CHEMISTRY, POLYNUCLEAR HYDROCARBON, HALIDE, CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0017 STEP NO--UR/0020/70/191/001/0134/0137

CIRC ACCESSION NO--AT0125857

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0125857

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MOESSBAUER EFFECT WAS USED TO STUDY THE COORDINATION OF PH SUB3 SNF, PH SUB3 SNCL, PH SUB3 SNBR, PH SUB3 SNI, AND THEIR ET AND ME ANALOGS IN SOLVENTS SUCH AS HEPTANE, ET SUB2 O, CHCL SUB3, PYRIDINE, TETRAHYDROFURAN, ME SUB2 NCHO, ME SUB2 SO, (CH SUB2 OME) SUB2. THE SPECTRAL CHARACTERISTICS ARE TABULATED. COORDINATION WAS DETECTED FOR THE ORGANOTIN HALIDES IN STRONGLY SOLVATING SUBSTANCES AND COORDINATION WAS OBSERVABLE IN CRYSTALS IN THE INDIVIDUAL SUBSTANCES. THIS WAS CAUSED BY THE FACT THAT IN PASSAGE FROM INDIVIDUAL HALIDES TO THEIR SOLNS. IN STRONGLY SOLVATING SOLVENTS THE CHANGE IN QUADRUPOLE SPLITTING IS DETD. BY THE DIFFERENCE IN INTENSITY OF COORDINATIONAL INTERACTIONS IN THE CRYSTALS OF THE INDIVIDUAL SUBSTANCE AND ITS SOLN. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--CHEMICAL STATE OF THE TIN ATOM IN ORGANOTIN CELLULCSE DERIVATIVES STUDIED BY GAMMA,RESONANCE SPECTRUSCOPY -U-

AUTHOR-(05)-KHRAPOV, V.V., ROCHEV, V.YA., ARTEMOVA, YU.V., VIRNIK, A.D., ZEMLYANSKIY, N.N.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(2), 145-9

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANOTIN COMPOUND, CELLULOSE, ACRYLIC ACID, COPOLYMER, POLYMER STRUCTURE, GAMMA SPECTRUSCOPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0315 STEP NO--UR/0460/70/012/002/0145/0149

CIRC ACCESSION NO--AP0111509

UNCLASSIFIED

2/2 019

CIRC ACCESSION NO--AP0111509 UNCLASSIFIED PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF A CELLULOSE (I), POLY, (ACRYLIC ACID) GRAFT COPOLYMER (II) AND OF CM CELLULOSE (III) WITH (BU SUB3 SN)SUB2 O OR BU SUB2 SNCL AND THE STRUCTURE OF THE POLYMERS THEREOF WERE STUDIED BY GAMMA, RESONANCE SPECTROSCEOPY. THE GAMMA, RESONANCE SPECTROSCOPIC PARAMETERS OF THE ORGANOTIN DERIVS. OF II AND III SUGGESTED THAT NEW SN CONTG. I DERIVS. HAVING BU SUB3 SNO SUB2 C GROUPS WERE FORMED. THE DATA AGREED WITH CHEM. ANAL.

UNCLASSIFIED

USSR

UDC 547.621:661.718.1/.719:542.953

ISAGULYANTS, V. I., PARFENOVA, V. A., and BOCHEVA, G. YA., Moscow Institute of Petrochemical and Gas Industry Imeni Akademika I. M. Gubkin

"Synthesis of O,O-Di-(alkylphenyl)-N-alkylamidothiophosphates"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 45, No 6, Jan 72, pp 1404-1406

Abstract: A mixture of 9.9 g O,O-di-(p-tert-butylphenyl)-thiophosphoryl chloride, 1.47 g n-propylamine, and 2 g pyridine in anhydrous benzene was heated to 60° with constant stirring under an atmosphere of nitrogen for 5 hrs. After cooling, pyridine hydrochloride was filtered off and benzene was removed under reduced pressure to yield O,O-di-(p-tert-butylphenyl)-N-n-propylamidothiophosphate. Analogously the following compounds were obtained: O,O-di-(p-tert-butylphenyl)-N-n-butyl-, and -n-amylamidothiophosphate and O,O-di-(octylphenyl)-N-propyl-, -isobutyl-, -n-butyl-, -n-amyl-, and -n-hexylamidothiophosphate.

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USSR

UDC: 621.373.54

RODA, A. A., ROSHAL', A. S., Members of the Scientific and Technical Society of Radio Engineering, Electronics and Communications imeni A. S. Popov

"Concerning the Time Characteristics of a Tunnel-Diode Flip-Flop"

Moscow, Radiotekhnika, Vol 27, No 7, Jul 72, pp 52-55

Abstract: The time characteristics of a bistable tunnel-diode flip-flop are determined by digital computer integration of the corresponding differential equations for various values of the parameters and of the triggering signal. It is found that the speed of flip-flop operation is determined chiefly by the diode parameters. The relative level of the triggering signal also has an appreciable effect. The firing threshold, as well as the switching and delay times are considerably dependent on selection of the operating point. The lowest trigger signal amplitude is attained when the signal time is equal to or longer than the sum of the switching and delay times. Reducing signal length appreciably increases the triggering threshold.

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UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--MANIFESTATIONS OF A SPIN SPIN RESERVOIR IN MAGNETIC RESONANCE WITH A HETEROGENEOUSLY BROADENED LINE -U-

AUTHOR--RODAK, M.I.

COUNTRY OF INFO--USSR

R

SOURCE--FIZ. TVERD. TELA 1970, 12(2), 478-83

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MAGNETIC RESONANCE, LINE BROADENING, SPIN SYSTEM, PARTICLE DISTRIBUTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1614

STEP NO--UR/0181/70/012/002/0478/0483

CIRC ACCESSION NO--AP0054464

UNCLASSIFIED

CIRC ACCESSION NO--AP0054464

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NONUNIFORMLY BROADENED MAGNETIC RESONANCE LINE IS CONSIDERED AS AN COMBINATION OF UNIFORMLY BROADENED LINES (SPIN PACKETS), WHICH POSSESS A COMMON RESERVOIR OF SPIN SPIN INTERACTIONS. A STEADY STATE SOLN. WAS OBTAINED FOR THE SYSTEM OF EQUATIONS FOR THE ZEEMAN TEMPS. OF THE INDIVIDUAL PACKETS AND SPIN SPIN RESERVOIR TEMP. T SUBSS ON SATN. OF THE NONUNIFORM LINE WITH SOME DISTURBANCE DELTA. FOR THE CASE WHEN ALL SPIN PACKETS ARE PARTICIPATING IN CROSS RELAXATION AND (OR) INDIRECTLY BECOME SATD. DUE TO OVERLAPPING OF ITS WINGS FOR T SUBSS PRIME NEGATIVE1 A FORMULA IS OBTAINED WHICH IS SIMILAR TO THE CORRESPONDING FORMULA FOR A UNIFORMLY BROADENED LINE, BUT WHICH DIFFERS ONLY BY ADDN. TO DELTA PRIME2 IN THE DENOMINATOR OF THE MAGNETUDE M SUB2 THE 2ND MOMENT OF THE DISTRIBUTION OF PARTICLES OVER PACKETS. ON SATN. OF A NONUNIFORM LINE IN ONE WING THE MAGNITUDE OF T SUBSS PRIME NEGATIVE1 CAN INCREASE AS STRONGLY AS IN AN UNIFORM LINE OF THE SAME SHAPE. VARIATION OF THE SHAPE OF THE INDICATION LINE HAS THE SAME CHARACTER AS THE UNIFORM LINE; IN PARTICULAR STIMULATED RADIATIONS ARE OBSD. ON ONE WING AND AN INCREASE IN ABSORPTION AS COMPARED TO THE EQUIL. ABSORPTION ON THE OTHER WING. FACILITY: INST. RADIOTEKH. ELEKTRON., MOSCOW, USSR.

1/2 028 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--MELTING AND CRYSTALLIZATION OF POLY,TRIFLUOROCHLOROETHYLENE, CONTAINING SYNTHETIC NUCLEATING AGENTS -U-

AUTHOR-(02)-RODCHENKO, D.A., BELYY, V.A.

COUNTRY OF INFO--USSR

R

SOURCE--DOKL. AKAD. NAUK BELORUSS. SSR 1970, 14(5), 425-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--CRYSTALLIZATION, CHLOROFLUOROCARBON COMPOUND, ETHYLENE, NUCLEATION, OPTIC MICROSCOPE, MOLYBDENUM DISULFIDE, CADMIUM, THERMAL STABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1916 STEP NO--UR/0250/70/014/005/0425/0427

CIRC ACCESSION NO--AT0135459

UNCLASSIFIED

CIRC ACCESSION NO--AT0135459 UNCLASSIFIED PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF NUCLEATION OF POLY(TRIFLUOROCHLOROETHYLENE) (I) CRYSTN. BY CDO AND CD ON THE MELTING AND CRYSTN. TEMPS. WERE STUDIED BY OPTICAL MICROSCOPY. I CONTG. 0.1PERCENT DISPERSE CDO MELTED 2-2.5DEGREES HIGHER THAN I ITSELF, M. 209-9.5DEGREES. SPHERULITES APPEARED WITHIN A 1-2DEGREES RANGE WHILE COOLING I MELT CONTG. CDO AND 10-11DEGREES HIGHER THAN I, WHICH CRYSTALLIZED MORE SLOWLY. WHEN A CD STRIP WAS PLACED ON THE MICROSCOPE STAGE WHERE MELTING WAS OBSD., MELTING BEGAN IN THE PARTICLES NOT IN CONTACT WITH CD 1-2DEGREES LOWER THAN IN THOSE ADJACENT TO THE STRIP. ON COOLING, SPHERULITES APPEARED QUICKLY IN THE LATTER REGION 4-6DEGREES HIGHER THAN IN THAT NOT ADJACENT TO THE STRIP. SIMILAR BEHAVIOR WAS OBSD. WITH MOS SUB2 AND SALTS OF ORG. ACIDS AS NUCLEATING AGENTS. APPARENTLY, THE PRESENCE OF ARTIFICIAL NUCLEATING AGENTS CAUSES FORMATION OF THERMALLY STABLE STRUCTURAL ELEMENTS. FACILITY: INST. MEKH. METALLOPOLIM SIST., MINSK, USSR.

UNCLASSIFIED

USSR

UDC 621.762:669.018.44(088.8)

DUKARSKIY, S. M., RODCHENKO, M. I., TARABANOV, A. S., MAKHALOV, P. N., and DUDIN, V. V.

"Press Powder for Manufacture of Heat Resistant Products"

USSR Author's Certificate No. 252165, Filed 14/06/67, Published 24/07/70 (Translated from Referativnyy Zhurnal-Metallurgiya, No. 2, 1971, Abstract No. 2 G457 P)

Translation: The press powder includes a carbon-containing filler, organic binder, metal oxide easily reduced by carbon, such as TiO_2, and impurities. In order to increase the strength of products upon siliciaing, the powder contains a phenol formaldehyde resin as a binder, graphite as the carbon-containing filler, with the components of the press powder in the following weight parts: graphite 65-85, TiO_2 8-15 per 100 weight parts of the mixture, phenol formaldehyde resin 5-20, impurity 0.5-5.

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021

UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--THERMAL STABILITY OF POLY,3,METHYLENEPHTHALIDE -U-

AUTHOR-(05)-RODE, V.V., ZHURAVLEVA, I.V., GAMZAZADE, A.I., SALAZKIN, S.N.,
CHELIDZE, G.SH.

COUNTRY OF INFO--USSR

R

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (4), 926-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMAL STABILITY, ACTIVATION ENERGY, FREE RADICAL, BENZENE
DERIVATIVE, HETEROCYCLIC OXYGEN COMPOUND, LACTONE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1312 STEP NO--UR/0062/70/000/004/0926/0928

CIRC ACCESSION NO--AP0134386

UNCLASSIFIED

2/2 021
CIRC ACCESSION NO--AP0134986 UNCLASSIFIED
PROCESSING DATE--20NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE POLYMER (I) (S. B.
VINOGRADOVA, ET AL., 1970) WAS HEATED IN A VACUO OR AR ATMOSPHERE AT
275-400DEGREES. THE MAIN DECOMPN. PRODUCT IS LESS THAN OR EQUAL TO
375DEGREES WAS 3,METHYLENEPHTHALIDE. ONLY ABOVE 375DEGREES TRACES OF
CO SUB2, CO, AND H SUB2 WERE DETECTED. DTA CURVES AND WT. LOSS VS. TIME
CURVES SHOWED THAT THE DECOMPN. OF I WAS A FREE RADICAL INITIATED
DEPOLYMN. ASSOCD. WITH 39.5 KCAL-MOLE ACTIVATION ENERGY.
FACILITY: INST. ELEMENTOORG. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--STRUCTURAL CHANGES IN SOME AROMATIC POLYIMIDES AT HIGH TEMPERATURES
-U-

AUTHOR-(03)-GRIBKOVA, P.N., RODE, V.V., KORSHAK, V.V.

COUNTRY OF INFO--USSR

R

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 568-75

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MOLECULAR STRUCTURE, PYROLYSIS, POLYMER CROSSLINKING, ANILINE, PHTHALIC ANHYDRIDE, TENSILE STRENGTH, POLYIMIDE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1347 STEP NO--UR/0062/70/000/003/0568/0575

CIRC ACCESSION NO--AP0135021

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0135021

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOL. FORMS OF LINEAR POLYIMIDES BASED ON PYROMELLITIC DIANHYDRIDE AND ANILINEPHTHALEIN POLYIMIDES BASED ON PYROMELLITIC DIANHYDRIDE AND ANILINPHTHALEIN AND ON 4,4PRIME,OXYBIS(PHTHALIC ANHYDRIDE) AND ANILINEFLUORENE WERE SUBJECTED TO PYROLYSIS AND CONCURRENT THERMAL THE THERMAL OXIDATIVE AGING AT LESS THAN OR EQUAL TO 375DEGREES. THE AGING OF THESE POLYIMIDES AT TEMPS. PRIOR TO WT. LOSS INITIATION WAS DUE TO CROSSLINK FORMATION AS WELL AS DESTRUCTION (THE LESS PRONOUNCED PROCESS). CROSSLINK FORMATION RESULTS IN PROPERTY CHANGES WHICH INCLUDE INCREASED TENSILE STRENGTH, ESP. AFTER 1 HR IN VACUO AT SIMILAR TO 400DEGREES, WHEN A NEARLY 40PERCENT INCREASE IS OBSERVED. CROSSLINK FORMATION WAS READILY FOLLOWED BY TURBIDIMETRY. AS THE TEMP. WAS RAISED, THE DIFFERENTIAL CURVES OF MOL. WT. DISTRIBUTION OF THE POLYMERS DEVELOPED A TWINNED MAX., SHOWING THE PRESENCE OF LOW AND HIGH MOL. WT. FRACTIONS. FACILITY: INST. ELEMENTOORG. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

Analysis and Testing

USSR

UDC: 620.179.14

PRAVDIN, L. S., and RODGIN, N. M., Institute of the Physics of Metals, UNTs (expansion unknown), Academy of Sciences, USSR

"Electromagnetic Inspection of the Isothermal Hardening of 40Kh Steel"

Sverdlovsk, Defektoskopiya, No 2, 1972, pp 62-70

Abstract: An investigation is made of the possibility of electromagnetic inspection of the hardening of 40Kh steel in alternating fields of different frequencies, as well as in alternating fields with constant superposed magnetization by a constant field of different value. A method is proposed for the nondestructive electromagnetic float inspection of the hardening of 40Kh steel within the isothermal holding-temperature limits of 230-380° with the use of a constant superposed magnetization field of 40-50 oersted and a two-frequency regime of transducer operation. 6 figures. 2 tables.

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USSR

UDC 621.373.826

AKIMOV, YU. A., BUROV, A. A., GOVORKOV, O. I., KRYUKOV, I. V., RODICHENKO, G. V., STEPANOV, B. M.

"KGP-1M Semiconductor Quantum Generator with Electron Excitation"

V sb. Ispol'z. optich. kvant. generatorov v sovrem. tekhn. i med. Ch. 2-3 (Utilization of Lasers in Modern Engineering and Medicine. Parts 2-3--collection of works), Leningrad, 1971, pp 15-20 (from RZh-Radiotekhnika, No 1, 1972, Abstract No 1D376)

Translation: The KGP-1M laser designed for generation of a series of radiation pulses with the interferometric and shadow methods of investigating the optical inhomogeneities is described. The basic characteristics of the laser are as follows: The radiation pulse duration is 10 nanoseconds to 1 microsecond, the repetition rate is 100 hertz to 1 hertz, the radiation power is 100 watts to 1 watt. When operating in the pulse mode, the packet repetition rate is 100 hertz, the number of pulses per packet is 20-30, the pulse repetition rate in the packet is 100 megahertz to 1 gigahertz, the duration of the light pulses is 1-0.1 nanoseconds, and the radiation power per pulse is 100 watts. As the working medium of the semiconductor target, n-type gallium arsenide alloyed with Te is used with an impurity concentration of $1-3 \cdot 10^{18}$ cm^{-3}. At the temperature of liquid nitrogen, λ = 0.844-0.85 microns. There are 4 illustrations and a 3-entry bibliography.

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USSR

UDC: 621.372.41

RODICHEV, A. S., DMITRIYEVA, L. P.

"Frequency Departures of Quartz Resonators Under Impact as a Function of Resonator Orientation"

Elektron. tekhnika. Nauch.-tekhn. sb. Radiokomponenty (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 5, pp 21-25 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V446)

Translation: The paper deals with the effect of resonator orientation on the frequency departures of resonators under impact. A formula is derived for calculating frequency departures in the case of arbitrary resonator orientation from measurements of the departures during impacts in three directions. The experimental results are presented. Resumé.

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USSR

Power

UDC 621.362:523.72-531.9

SHERMAZANYAN, YA. T., TARNIZHEVSKIY, B. V., GRIGORYAN, R. S., NERSISYAN, T. A., RODICHEV, B. YA.

R

"A Device for Supplying Powers to Equipment From a Solar Battery with Photovoltaic Cells"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 18, 1970, Author's Certificate No 271619, Filed 25 Jan 68, p 46

Abstract: This author's certificate introduces a device for powering equipment from a solar battery with photovoltaic cells. The device contains a commutator for connecting the load to the battery. As a distinguishing feature of the patent, the reliability of the device is improved by using relays and power pickups in the commutator with their contacts connected in the relay coil circuits. The contacts of the elements divide the solar battery into several sections, each of which is connected to each piece of equipment through the contacts of this relay.

1/1

USSR

UDC 539.216.2:538.2

KIM, P. D., POTYLITSYN, V. I., BOGATYREVA, L. A., RODICHEV, D. M., and SAFONOV, I. A., Krasnoyarsk Polytechnical Institute

"Energy of Domain Boundaries in Permalloy Films"

Moscow, Fizika Metallov i Metallovedeniye, Vol 30, No 5, 1970, pp 903-907

Abstract: A method is suggested for measuring the energy density of domain boundaries in thin permalloy films with circular anisotropy. The measurements, performed on a film 1,100 Å thick, yield values of domain boundary energy density γ near 4.2 erg/cm^2, which agrees well with the theoretical estimates for films of this thickness. In the area of thicknesses less than 1,000 Å, the measured energy values exceed the expected values, reaching 18 erg/cm^2. An attempt is made at experimental study of γ as a function of the constant field intensity applied perpendicular to the plane of the circular boundary.

USSR UDC 539.216.22:621.318.1

RODICHEV, G. M., ARNOL'D, O. P., Krasnoyarsk Polytechnical Institute

"Realization of the Trigger Effect in Magnetic Films in the Presence of Constant Magnetic Fields"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, No 3, 1972, pp 105-107

Abstract: Experiments to study the effect of constant magnetic fields applied along the easy magnetization and difficult magnetization axes on achievement of a trigger effect and on the final magnetization states after the action of a pulsed field along the difficult magnetization axis are described. These experiments show the possibility of controlling the trigger effect and the possibility of applying controlling pulses of short duration in magnetic film memory units. The experiments also provide some information on certain features of the motion of the magnetic moment under the action of a pulsed field $H_\perp$ and also information on inertia. Experiments are conducted on films obtained by thermal evaporation of an 81.5% Fe alloy in a vacuum. The film thickness was 750 Å. The film had an anisotropy field H_k = 2.9 oe, a coercive force H_c = 1.6 oe, and an angular dispersion α_{90} = 1.3°. It is shown that under weak pulsed fields the constant fields directed opposite to the pulse

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USSR

RODICHEV, G. M., ARNOL'D, O. P., Izvestiya Vysshikh Uchebnykh Zavedeniy,
Fizika, No 3, 1972, pp 105-107

impede the achievement of a trigger effect and that under strong pulsed fields the same field constants facilitate the achievement of a trigger effect. In the latter case the range of pulses leading to a trigger effect increases. Under the action of small pulsed fields the constant field makes conditions for achievement of a trigger effect poorer, since the rotating moment acting on the magnetization decreases. Under strong pulsed fields the decrease in the rotating moment due to the constant field does not have any considerable value, but the time in which the rotating moment reaches its greatest value increases due to the fact that the magnetic moment in the initial state is somewhat deflected opposite to the direction of the pulsed field.

USSR UDC 621.32.032.75

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RODICHEV, Yu. M., CHEMERIS, A. N., PEREVORUKHOV, G. I., AMEL'YANOVICH, K. K., PODGORNYY, L. N., KRAYNOVA, E. A., Kiev, Problemy Prochnosti, No 8, 1972, pp 26-29.

The ceramic spheres are found to be capable of withstanding compressive stresses of up to 70% of the ultimate strength without residual changes in shape or dimensions, as long as the walls of the spheres do not have significant thickness variations.

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AA0052625 RODICHEV Yu M UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 2/70

241474 **HEATING SYSTEM** reduces heating time, produces a required thickness of the hardened layer and permits local hardening. It consists of a heat source 1 and a body 2 which focuses the heat energy on to the product mounted inside a quartz tube 3. The body is in the form of an eliptical cylinder with end covers 4. It is water cooled and mirror polished inside. For local heating a suitably cut-out screen 5 is positioned between the source and the product. Quenching bath 6, mechanism 7 for feeding and discharging product into the bath, the temperature sensor 8 and the light heat controller 9 complete the installation. When the correct temperature is reached, the product is discharged automatically into the bath and the heat source is switched off. The heat source can be a super high tension arc lamp of 10 KWT.

22.1.68 as 1213610/22-1 G.V. ISAKHANOV et al. Strength Problems Inst. Acad. Sciences Ukrainian SSR (29.9.69) Bul. 14/18.4.69. Class 18c, Int. Cl. C 21d.

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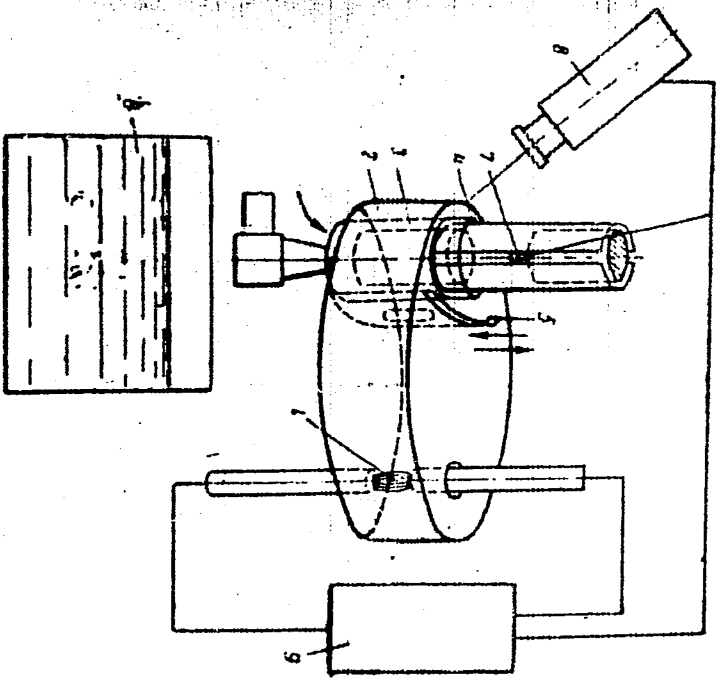

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AA0052625

Isakhanov, G. V.; Lyashenko, B. A.; Eskin, E. A.; Rodichev, Yu. M
Institut Problem Prochnosti AN Ukrainskoy SSR

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hopper containing the abrasive, which is fed through a screened rotor into a nozzle for injection into the combustion chamber. The abrasive transfer to the nozzle is regulated by the rotor rate.

Device specifications conform to the gas-flow parameters of the basic gas-dynamic test stand: gas consumption, 517 g/sec; fuel consumption, 60 g/sec; oxygen consumption, 100 g/sec; supersonic nozzle entry temperature, 2500° K; pressure, 3 atm, and pressure behind the nozzle, 1 atm. The Laval nozzle has a critical cross section of 33.6 cm^2 (the diameter is correspondingly 65 mm) and an expanding section length of 170 mm, which with an aperture of $2\alpha = 20^\circ$ controls the outlet diameter of 125 mm. Preliminary tests confirmed the feasibility of the following gas-flow parameters: temperature - 1950° K, and velocity - 1160 m/sec, which corresponds to the Mach number $M = 1.22$.

Rodichev, Yu. M. Factors of weakening of sheet asbotextolite under intense unilateral heating. Problemy prochnosti, no. 5, 1972, 51-53.

Weakening factors of asbotextolite protective coatings were studied at a linear surface temperature increase of the carrier layer, observed during the heating of aerodynamic structures. The tests were conducted on an installation for studying the mechanical properties of heat-resistant plastics under conditions of programmed intensive unilateral heating during bending. Heat was applied by contact using a thin nickel resistance heater. Load application was by flexure. The specimen surface was heated at constant rates of 0.5, 1, 2, and 4°/sec.

RODICHEV, Yu. M.

USSR UDC 621.375.147:621.372.57:621.372.533

RODICHEVA, I. N., and SLAVSKIY, G. N.

"Realizing Amplification of Active Filter Elements with Field Transistors"

V sb. Tonkiye magnitn. plenki, vychisl. tekhn. i radiotekhn. T. 1 (Thin Magnetic Films, Computer Technology and Radio Engineering--collection of works. Vol 1), Krasnoyarsk, 1971, pp 130-134 (from RZh-Radiotekhnika, No 11, Nov 71, Abstract No 11D154)

Translation: Circuits are analyzed and computational formulas are presented for active high- and low-frequency filters with field-effect transistors. It is shown that the use of field effect transistors improves the stability of filters with positive feedback assuming acceptable complexity. N. Ch.

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UDC: 621.316.933

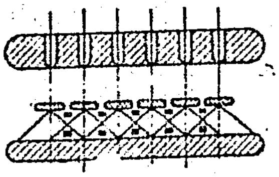
USSR

DMITRIYEV, S. P., [redacted] TIMONIN, A. M.

"A Multichannel Spark Discharger"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329616, Division H, filed 30 Jun 70, published 9 Feb 72, p 213

Translation: This Author's Certificate introduces a multichannel spark discharger which contains a one-piece solid electrode, and an electrode with holes accommodating ignition electrodes. As a distinguishing feature of the patent, operational reliability is improved by placing auxiliary electrodes between the main electrodes. Each of the auxiliary electrodes is connected by two wires to the solid electrode at points located on the axes of adjacent auxiliary electrodes.



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USSR

UDC: 621.316.933

KOVALENKO, V. P., RODICHKIN, V. A., SMIRNOV, V. G., TIMONIN, A. M.

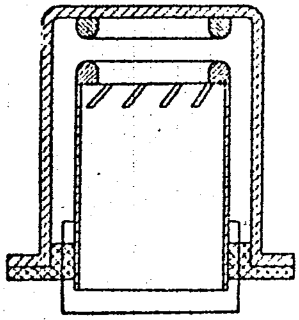
"A High-Current Spark Discharger"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329614, Division H, filed 30 Jun 70, published 9 Feb 72, p 212

Translation: This Author's Certificate introduces a high-current spark discharger which contains ring electrodes and a coaxial cylindrical channel for feeding current to the electrodes. As a distinguishing feature of the patent, the durability of the discharger is extended by cutting slots at an angle to the generatrix through the coaxial current conducting cylinder at the line of connection to the ring electrode.

USSR

KOVALENKO, V. P. et al., USSR Author's Certificate No 329614



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USSR

UDC 632.4:582.282.112:633.11(477.54)

RODIGIN, M. N., and ATTIYA, M. F., Chair of Phytopathology, Kharkov Agricultural Institute

"Specialization of Wheat Powdery Mildew Pathogen in Kharkov Oblast"

Leningrad, Mikologiya i Fitopatologiya, Vol 7, No 1, 1973, pp 39-40

Abstract: On the educational Communist Farm of the Kharkov Agricultural Institute, Erysiphe graminis DC. f. tritici March. inhabits wheat with the following frequency distribution: race 16 -- 25.01%; race 14 -- 19.44%; race 13 -- 16.67%; race 15 -- 13.89%; races 0 and 7 each -- 8.33%; race 33 -- 5.55%; and race 37 -- 2.78%. A specialization test performed on eight indicator plants and one control (Bezostaya 1, susceptible to all races) revealed that race 16 attacks Axminster, Hope, and Chul; race 14 -- Chul; race 13 -- Axminster and Chul; race 15 -- Axminster and Hope; race 7 -- Red Fern, Axminster, and Normandie; race 33 -- Red Fern, Axminster, Normandie, Hallenstamm 1341, Hope, and Chul; and race 37 -- Red Fern, Axminster, Normandie, Hallestamm 1341, and Weihenstephan Ml. Race 0 attacks none of the indicator plants. Indicator plant Salzmundestamm 14/44 is attacked by none of these races.

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USSR UDC: 621.396.96:621.371

POTEKHIN, V. A., RODIMOV, A. P., GLUKHOV, A. N.

"On the Degree of Polarization of Electromagnetic Waves Randomly Scattered by a Set of Reflectors"

Khar'kov, Radioelektronika letatel'n. apparatov--sbornik (Aerospace Electronics--collection of works), vyp. 1, Khar'kov Aviation Institute, 1972, pp 62-66 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12G27 [résumé])

Translation: The degree of polarization of a plane quasimonochromatic partially polarized electromagnetic wave randomly scattered by a set of spatially distributed elementary reflectors is represented in terms of the second moments of the statistical scattering matrix of the target, and the polarization parameters of the irradiating monochromatic wave. The resultant expression is investigated for the extremum with respect to the modulus of the polarization coefficient of the incident field; in view of the invariance of the degree of polarization to selection of the polarization, this investigation is made in the target basis proper. Bibliography of 6 titles.

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USSR UDC 532.507+532.529.5

GRINMAN, I. G., RODIN, A. I.

"Experimental Investigation of the Interaction Between a Gas Flow and a Liquid During a Split Phase Flow"

Alma-Ata, *Izvestiya Akademii Nauk Kazakhskoy SSR, Seriya Fiziko-Matematicheskaya*, No 4, Jul-Aug 71, pp 19-25

Abstract: In spite of the numerous investigations, much still remains to be done to define the quantitative characteristics of the interaction between a gas flow and a liquid. The modes of motion must be refined in greater detail for the gas-liquid mixture. The authors discuss three aspects of this problem. They first determine the interaction of the gas flow with the surface of a liquid and illustrate their findings schematically. They next evaluate the influence of gas consumption on the velocity of transport of the liquid and the pulp and support their findings by schematics. Finally, the authors compare the experimental and theoretical data on this interaction and determine that their experimental data agree well with the theoretical data of P. L.

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USSR

GRINMAN, I. G. et al, Izvestiya Akademii Nauk Kazakhskoy SSR, Seriya Fiziko-Matematicheskaya, No 4, Jul-Aug 71, pp 19-25

Kapitsa described in reference /¯1_7; thus it is possible to expand the theoretical function /¯equation (2)_7 derived for the two-dimensional case into the more general case of a three-dimensional problem which actually exists under the conditions of motion of a gas-liquid mixture during the split phase flow. The article contains 7 figures and 10 bibliographic entries.

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AA0052390

РОДИН А.С.

UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General, Derwent, 1-70

243430 **SHIP'S TRANSMISSION** comprising hydromechanical reversible reduction gear, with planetary stage, central gear train, reverse gear train, distributor and hydraulic clutch, differing in that the planetary stage has a crown, the pole of which is the driven link of the reduction gear. The sunwheel is connected to the central gear train, one gear of which is in contact with the forward and reverse wheels of the separator shaft respectively via the forward and reverse hydraulic clutch. A gear of the reverse gear train is connected to the reverse wheel of the distributor gear train, the central gear of which, being engaged simultaneously with the forward and reverse wheels of this train, serves as the driving link of the reduction gear. This enables fuller use to be made of the engine's power in reverse. In order to improve the coeff. of useful work of the installation during prolonged forward motion, the forward wheel of the distributor gear train is connected to a gear of the central gear train via a separating cam clutch.

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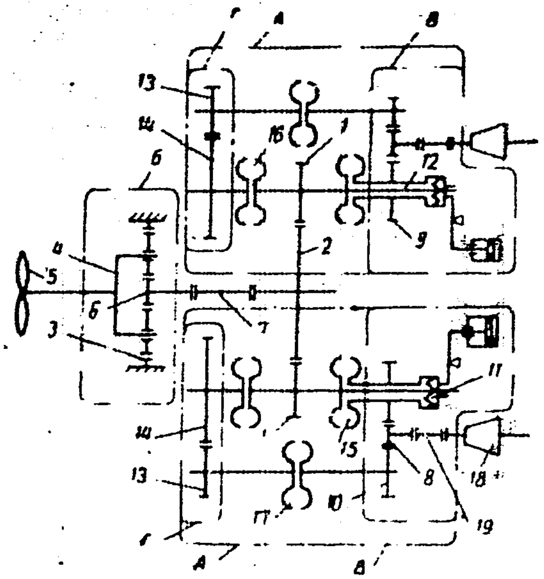
AA0052390

Ioffe, L. Ya.;
Komarova, L. K.;
Pyzh, O. A.;
Rodin, A. S.



14.8.67 as 1181577/27-11.IOFFE L.YA.et al.(11.9.69)
Bul 16/5.5.69. Class 65f. Int.Cl.B 63j.

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